Challenges in the diagnoses and treatment of CNS tumors

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Editorial

The present issue of Neuro-Oncology Practice has a focus on gliomas and challenges in the diagnoses and treatment of brain metastasis. An invited review by Dr. Kruchko and colleagues for the Central Brain Tumor Registry of the United States summarizes efforts to improve the collection of data on central nervous system tumor within CBTRUS, notably the integration of molecular markers. The latter became necessary based on the revised WHO classification of brain tumors which makes limited molecular testing almost mandatory for certain disease entities, notably gliomas of adulthood. Incorporating molecular data will greatly increase the value of this resource for clinical research in brain tumors.

Several further articles focus on exploring the value of novel treatment approaches for brain tumors in adults. Nakajima and colleagues report that awake surgery for patients with gliomas usually had a good functional outcome at their site, but that deep sensory function and visual spatial cognition were domains most likely to be affected. The tolerability and efficacy of hypofractionated stereotactic radiotherapy for intracranial meningiomas was studied in a systematic review that was conducted by Nguyen and colleagues. They arrive at the conclusion that local control and tolerability of hypofractionated stereotactic radiotherapy are comparable to traditionally used other radiation regimens. Re-irradiation for recurrent glioblastoma remains a widely used treatment modality although its efficacy has not been demonstrated in a randomized clinical trial. Chapman and colleagues report that prognostic factors for overall survival in patients undergoing re-irradiation were age, time to initial progression and planning target volume. While these data may help to derive prognostic information, these prognostic factors are not surprising and might be reproduced when using other treatment modalities. With improved outcomes for glioma patients, the quality of survival becomes an increasingly important consideration. Ability to return to work is in fact a relevant outcome measure when assessing impact of therapeutic interventions. In that regard, Altshuler and colleagues report that polymorphisms in the BDNF, COMT and DRD2 genes, which have previously been associated with higher performance in neurocognitive domains in aging and other diseases, were also associated with higher likelihood to return to work in patients with gliomas. Finally, Kim and colleagues identified a group of 155 patients who survived glioblastoma for more than five years. They observed 17 secondary cancers in 13 of these patients. These observations illustrate the necessity for comprehensive oncological follow-up in long-term survivors of glioblastoma.

The last three publications address current issues in the diagnosis and treatment of brain metastasis. Fares and colleagues have compiled an interesting review on clinical trials conducted in patients with brain metastasis from breast cancer. There is overall a low number of trials and accrual seems to be challenging. Many trials appear not to reach the state of publication. Pathways to improve the current situation are discussed. Given the

improved outcome from patients with metastatic melanoma or lung cancer even with brain metastasis since the introduction of immunotherapy, the role and optimal timing of radiosurgery is increasingly being challenged. There are strong opinions favoring either early or delayed radiosurgery, but there are no data from controlled clinical trials. Lanier et al., reviewing their patients retrospectively, arrive at the conclusion that the combination of immunotherapy with stereotactic radiosurgery improves outcome but randomized trials remain necessary to confirm this conclusion. Finally, Anderson and colleagues report on their own algorithm how to manage neurological complications in patients treated with immune checkpoint inhibitors. The majority of these complications is related to the peripheral nervous system and mimick myasthenia gravis or Guillain-Barré syndrome. Treatment algorithms like the one proposed here will assume an increasing importance, but need to be evaluated and optimized in a prospective fashion.

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